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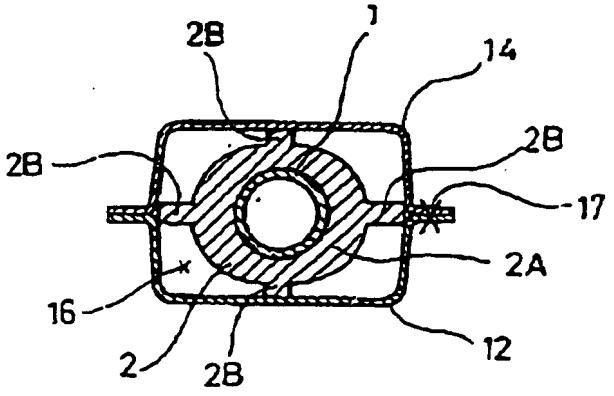
(54)【考案の名称】 中空構造物における発泡性材料の取り付け構造及び発泡性材料の取り付け用加工体

(57)【要約】

【目的】 車両ピラー等の中空構造物に強度を付与することのできる防音及び制振用発泡性材料の取り付け加工体及び発泡性材料の取り付け構造を提供する。

【構成】 金属製パイプ形状の芯部材1を発泡性材料2の略中心位置に有してなる発泡性材料の取り付け用加工体を、内部ピラー部分12の周囲壁に対して三個の支持部2Bを垂直に設き、取り付けた後、内部ピラー部分12を外部ピラー部分14にスポット溶接17により固定し、ピラーを組み立てることにより発泡性材料の取り付け構造を得る。加熱により発泡性材料2は発泡し、中空部16内に発泡体が満たされる。この発泡体はその中心内部に金属製パイプ形状の芯部材1を有するのでピラーに強度が付与される。



【請求項１】 中空構造物の中空部に配置し、発泡させ、補強用の芯部材を含んで、中空部を遮断する発泡体を形成する発泡性材料の取り付け構造であって、前記発泡性材料は前記中空構造物の長手方向に延在された剛性及び耐熱性の芯部材の外側に取り付けられ、かつ芯部材が、中空部の所定位置に位置するように中空部内に挿入支持されてなることをことを特徴とする発泡性材料の取り付け構造。

【請求項２】 中空構造物の中空部に配置し、発泡させ、補強用の芯部材を含んで、中空部を遮断する発泡体を形成する発泡性材料を前記中空部に取り付けるための取り付け用加工体であって、前記発泡性材料は前記中空構造物の長手方向に対応する剛性及び耐熱性の芯部材の外側に取り付けられ、かつ芯部材を中空部に挿入した際は中空部の所定位置に芯部材が位置するように発泡性材料が設けられていることを特徴とした発泡性材料の取り付け用加工体。

【図面の簡単な説明】

【図１】実施例１の発泡性材料の取り付け構造を示す断面図である。

【図２】実施例１における発泡性材料の取り付け加工体の構造図である。

【図３】実施例１においてピラーの中空部を満たした発泡体の状態図である。

【図４】実施例２の発泡性材料の取り付け構造を示す断面図である。

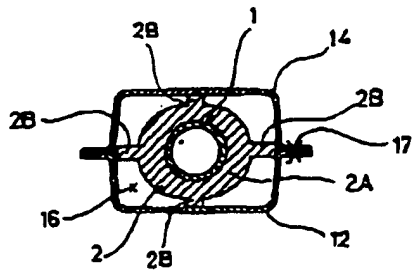
【図５】実施例２における発泡性材料の取り付け加工体の構造図である。

【図６】従来の発泡性材料の取り付け状態を示す断面図である。

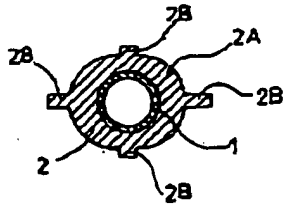
【符号の説明】

1	芯部材
2	発泡性材料
2B	支持部
3	芯部材
4	発泡性材料
S	支持部
16	中空部

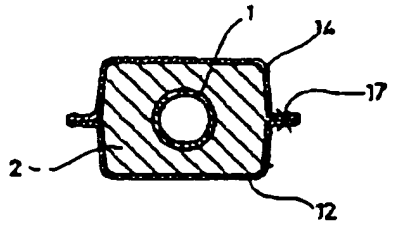
【図１】



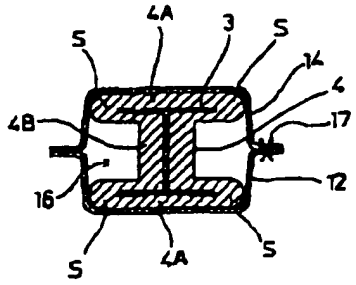
【図２】



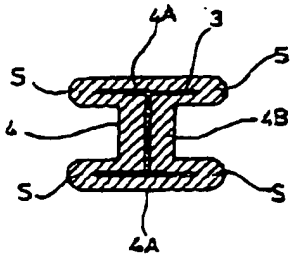
【図３】



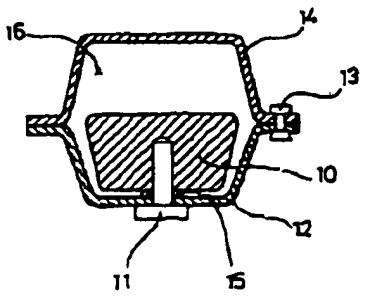
【図４】



【図５】



【図６】



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【0001】

【産業上の利用分野】

本考案は、中空構造物における発泡性材料の取り付け構造及び発泡性材料の取り付け用加工体に関し、詳しくは車両用ピラー等の中空構造物内の所定部位に配置し、その部位で発泡させて、中空部を遮断して防音及び制振等の効果を発揮させるための発泡性材料の取り付け構造及び発泡性材料の取り付け用加工体であって、さらに前記中空構造物に強度を付与することができるものに関する。

【0002】

【従来の技術】

この種の発泡性材料の従来の取り付け構造は、図６に示すように内部ピラー部分１２と外部ピラー部分１４にて形成される中空部１６に内部ピラー部分１２の外側から挿通したねじ１１にワッシャー１５を介して発泡性材料１０を差し込んだ状態とされ、発泡性材料１０は内部ピラー部分１２の外側から挿通したねじ１１により固定されていた。固定した発泡性材料１０は外部からの加熱により、発泡させ、ピラー内部の中空部１６を満たしたものとなし、中空部１６を満たす発泡体により、ピラーに防音及び制振効果を付与するようにしていう。

なお、図６において１３は内部ピラー部分１２と外部ピラー部分１４を組み付け固定するボルト締め部である。

【0003】

【考案が解決しようとする課題】

しかし従来の発泡性材料１０は単にねじ１１がその中央部分において差し込まれているのみであり、加熱により、発泡した場合にピラー内部の中空部１６に満たされる発泡体は強度が小さく、ピラー等の中空構造物に強度を付与することはできなかった。

そこで本考案の課題は、車両ピラー等の中空構造物に防音及び制振等の効果とともに強度を付与することのできる発泡性材料の取り付け構造、及びその構造となすための発泡性材料の取り付け用加工体を提供することにある。

【0004】

上記課題解決のために本考案の発泡性材料の構造は、中空構造物の中空部に配置し、発泡させ、補強用の芯部材を含んで、中空部を遮断する発泡体を形成する発泡性材料の取り付け構造であって、前記発泡性材料は前記中空構造物の長手方向に対応する剛性及び耐熱性の芯部材の外側に取り付けられ、かつ芯部材が、中空部の所定位置に位置するように中空部内に挿入支持されてなることを特徴とし、本考案の発泡性材料の取り付け用加工体は、中空構造物の中空部に配置し、発泡させ、補強用の芯部材を含んで、中空部を遮断する発泡体を形成する発泡性材料を前記中空部に取り付けるための取り付け用加工体であって、前記発泡性材料は前記中空構造物の長手方向に対応する剛性及び耐熱性の芯部材の外側に取り付けられ、かつ芯部材を中空部に挿入した際は中空部の所定位置に芯部材が位置するように発泡性材料が設けられていることを特徴とする。

【0005】

【作用】

上記構成の発泡性材料の取り付け加工体及び発泡性材料の取り付け構造によれば、加熱により発泡性材料を発泡させた場合、中空構造物の中空部内に満たされる発泡体はその内側に中空構造物の長手方向に対応する剛性の芯部材を有するので中空構造物に強度が付与される。

【0006】

【実施例】

実施例1

本考案の第一実施例を図1～図3に基づいて説明する。

図1は、車両ピラー内部の中空部16内に本例1の発泡性材料の取り付け用加工体を取り付けた本例1の発泡性材料の取り付け構造の図であり、加熱前で発泡性材料が未発泡の状態を示す。

本例1の発泡性材料の取り付け加工体は図2に示されるように、パイプ形状の金属製の芯部材1の外側に発泡性材料2を層状に被着してなるものである。この芯部材1と発泡性材料2とは発泡性材料2の成型時において一体化されている。発泡性材料2の形状は、芯部材1の外周全体に渡って一定の肉厚を有した円形層

体形状の支持部２Ｂを突設した形状に形成されている。円柱形状の芯部材１の長さは本例１の発泡性材料の取り付け加工体が取り付けられるピラーの長さと一致させてもよく、又はピラーの長さよりも短い長さを有する芯部材１を複数個、ピラーの長手方向に連続して取り付けて使用しても良い。ピラーが直線形状ではない場合には後者の使用方法を用いると良い。

【０００７】

本例１の発泡性材料の取り付け用加工体を車両ピラーの中空部１６内に取り付けた本例１の発泡性材料の取り付け構造は外部から加熱し、発泡性材料１０を発泡させる。生じた発泡体がピラーの中空部１６を満たし硬化した状態は図３に示すごとくである。図３は車両ピラーの中空部１６において芯部材１と中空部１６内壁間が硬化した発泡体にて満たされた状態を示している。

発泡体によりピラーの中空部１６内は全てを満たしても良く、または部分的に満たしても良く、この両場合において発泡体がピラーの中空部１６を遮断することとなる。

【０００８】

実施例２

次に、本考案の第二実施例を図４及び図５に基づいて説明する。

図１は、車両ピラー内部の中空部１６に本例２の発泡性材料の取り付け加工体を取り付けた本例２の発泡性材料の取り付け構造の図であって、加熱前の発泡性材料が未発泡の状態を示す。

本例２の発泡性材料の取り付け加工体は図５に示されるように、その断面がII形状である長手方向に延在された金属製の芯部材３の外面に発泡性材料４が筒状に取り付けられている。この芯部材３と発泡性材料４とは発泡性材料４の成型時において一体化されている。発泡性材料４の形状は断面がII形状である金属製の芯部材３の外面全体に一定の肉厚に形成され、その全体の断面形状は金属製の芯部材３を中心とする略Ｈ字型である。すなわち発泡性材料４は二個の直方体で板形状の平面部分４Ａ、１Ａを略平行位置に有し、これらの平面部分４Ａ、４Ａの間に平面部分４Ａ、４Ａに対して略垂直に、かつ連続して直方体の柱部分４Ｂ

て設け、この取り付け加工体が中空部１６に取り付けられた際に芯部材３が所定の中央位置に配置されるようにされている。なお、支持部Ｓは長手方向に沿って設けても良く、部分的に設けても良い。芯部材３の長手方向の長さは本例２の発泡性材料の取り付け加工体が取り付けられるピラーの長さと一致させてもよく、又はピラーの長さよりも短い長さを有する芯部材３を複数個、ピラーの長手方向に連続して取り付けて使用しても良い。ピラーが直線形状ではない場合には後者の使用方法を用いると良い。

本例１及び本例２の発泡性材料２及び４としては特開平２－２７６８３６に記載の配合の材料を使用した。この材料は１１０℃～１９０℃の温度で同時に発泡及び硬化でき、独立気泡発泡体を与えることを特徴とする。なお、発泡性材料は外部加熱によって発泡する発泡体を広く採用することができる。

【０００９】

本例１又は本例２の発泡性材料の取り付け加工体を車両ピラーの中空部１６に取り付ける際には、支持部２Ｂ又は支持部Ｓを、内部ピラー部分１２上の所定位置に置いた後、内部ピラー部分１２を外部ピラー部分１４にスポット溶着１７により固定し、ピラーを組み立てる。これにより、本例１又は本例２の発泡性材料の取り付け構造が得られる。

この取り付けの場合、本例１の発泡性材料の取り付け加工体においては、内部ピラー部分１２の周囲内面に対して垂直に三個の支持部２Ｂを立き、又は本例２の発泡性材料の取り付け加工体においては、同じ平面部分４Ａの両端の２個の支持部Ｓを内部ピラー部分１２の底面上に置けば、芯部材１又は芯部材３が中空部１６の中央位置に位置決めされる。

なお芯部材１又は芯部材３の位置決めは発泡性材料２又は発泡性材料４に予め磁石片を取りつけて、内部ピラー部分１２に磁着させて取り付けても良く、または従来の様にボルトを用いて円形周部分２Ａ又は平面部分４Ａを内部ピラー部分１２上に取り付けても良い。この場合は支持部２Ｂ又は支持部Ｓを設ける必要はなく、芯部材１及び芯部材３をピラーの中空部１６の略中心位置において長手方向に延在された状態に設置させ得る。この後、同様に内部ピラー部分１２を外部

てる。

【００１０】

本例１及び本例２の発泡性材料２及び４の形状はピラーを組み立てた場合において、発泡性材料２及び発泡性材料４の支持部２Ｒ及び支持部Ｓが中空部１６における開閉金属壁に対して直接、接する形状とされている。従って、外部からの加熱による熱が発泡性材料２及び発泡性材料４に伝達されやすいという利点がある。

【００１１】

本例１及び本例２の発泡性材料２及び発泡性材料４は加熱により発泡し、ピラー内部の中空部１６を満たすことにより、ピラーに防音及び制振効果等を付与する。この発泡は車両の加熱塗装時の加熱（約１６０℃）により生じるので、特別に加熱工程を設ける必要はなく便利である。

そして発泡後の本例１及び本例２の発泡性材料の取り付け加工体及び発泡性材料の取り付け構造は、発泡性材料２及び４の内部にピラーの長手方向に延在された剛性の各々芯部材１及び芯部材３を有するので、ピラーに強度が付与され、さらに、この状態において、芯部材１及び芯部材３はピラー内部の中空部の略中心位置に存在するので、芯部材１及び芯部材３によるピラーへの強度が付与がより効率良くなされる。

なお本実施例においては車両ピラーに本考案の発泡性材料の取り付け加工体を使用する場合について説明したが、車両ピラー以外にも他の中空構造物の中空部に本考案の発泡性材料の取り付け加工体を使用することができ、本考案の発泡性材料の取り付け構造を得ることができ、加熱により発泡性材料を発泡させて、防音、制振、防水等の効果を得ることができる。

【００１２】

【考案の効果】

本考案の発泡性材料の取り付け加工体及び発泡性材料の取り付け構造によると前記中空構造物の長手方向に延在された剛性及び耐熱性の芯部材の外側に発泡性材料を取り付けてあるので、加熱して発泡性材料を発泡させた場合、中空構造物

中空構造物の長手方向に延在された剛性の芯部材により中空構造物に強度が付与される。

(54) [Title of the Invention]

FITTING STRUCTURE OF EXPANDABLE MATERIAL IN HOLLOW STRUCTURE AND FITTING WORKED BODY OF EXPANDABLE MATERIAL

(57) [Abstract]

[Object]

There will be provided a fitting worked body of expandable material for acoustical insulation and vibration damping capable of imparting strength to a hollow structure such as vehicle pillars, and a fitting structure of expandable material.

[Constitution]

The fitting worked body of expandable material comprising a metallic pipe-shaped core member 1 at a substantially central position of an expandable material 2 is fitted with three supporting portions 2B vertically placed on a peripheral wall of an internal pillar portion 12. Thereafter, the internal pillar portion 12 is fixed to an external pillar portion 14 by means of spot welding 17 to assemble the pillar, whereby the fitting structure of expandable material can be obtained. Heating foams the expandable material 2 to fill a hollow portion 16 with foam. Since this foam has, within its central interior, the metallic pipe-shaped core member 1, strength is imparted to the pillar.

[Scope of Claims for Utility Model Registration]

[Claim 1]

A fitting structure of expandable material which is arranged in a hollow portion of a hollow structure, is foamed and contains a core member for reinforcement to form foam for

blocking up the hollow portion, characterized in that the expanded material is attached to an outer side of a core member having stiffness and resistance to heat extended in a direction of a length of the hollow structure, and the core member is inserted into the hollow portion and supported so as to be positioned at a predetermined position within the hollow portion.

[Claim 2]

A fitting worked body for fitting, to a hollow portion, an expandable material which is arranged in a hollow portion of a hollow structure, is foamed and contains a core member for reinforcement to form foam for blocking up the hollow portion, characterized in that the expanded material is attached to an outer side of a core member having stiffness and resistance to heat corresponding to a direction of a length of the hollow structure, and when the core member is inserted into the hollow portion, the expandable material is provided such that the core member is positioned at a predetermined position within the hollow portion.

[Brief Description of the Drawings]

Fig. 1 is a sectional view showing a fitting structure of expandable material according to a first embodiment;

Fig. 2 is a structural view showing a fitting worked body of expandable material according to the first embodiment;

Fig. 3 is a state view showing foam with which a hollow portion of a pillar is filled in the first embodiment;

Fig. 4 is a sectional view showing a fitting structure

of expandable material according to a second embodiment;

Fig. 5 is a structural view showing a fitting worked body of expandable material according to the second embodiment; and

Fig. 6 is a sectional view showing a conventional state of fitting of an expandable material.

[Description of Symbols]

1: Core member,

2: Expandable material,

2B: Supporting portion,

3: Core member,

4: Expandable material,

S: Supporting portion,

16: Hollow portion

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention relates to an fitting structure of expandable material in a hollow structure and a fitting worked body of the expandable material, and more particularly to a fitting structure of expandable material which is arranged at a predetermined position within a hollow structure such as a vehicle pillar, is foamed at that position and an hollow portion is blocked up to exhibit effects of acoustical insulation, vibration damping and the like, and a fitting worked body of the expandable material, further capable of imparting strength to the hollow structure.

[0002]

[Prior Art]

In a conventional fitting structure of this sort of expandable material, there is brought about a state in which an expandable material 10 is inserted to a screw 11 inserted through from an outer side of an internal pillar portion 12, through a washer 15, in a hollow portion 16 to be formed by the internal pillar portion 12 and an external pillar portion 14 as shown in Fig. 6, and the expandable material 10 has been fixed by means of the screw 11 inserted through from the outer side of the internal pillar portion 12. The expandable material 10 fixed is foamed by means of heating from outside to fill the hollow portion 16 within the pillar, and foam with which the hollow portion 16 is filled is caused to impart acoustical insulation and vibration damping effects to the pillar.

In this respect, in Fig. 6, a reference numeral 13 designates a bolt tightening portion for installing and fixing the internal pillar portion 12 to the external pillar portion 14.

[0003]

[Problems to be solved by the Invention]

In the conventional expandable material 10, however, merely the screw 11 has been inserted at the central portion, and when it foams by means of heating, the foam with which a hollow portion 16 within the pillar is filled has had too low strength to impart sufficient strength to the hollow structure such as the pillar.

It is a problem of the present invention to provide a fitting structure of expandable material capable of imparting strength to the hollow structure such as a vehicle pillar as well as effects of acoustical insulation, vibration damping and the like, and a fitting worked body of the expandable material required to adopt the structure.

[0004]

[Means for solving the Problems]

In order to solve the above-described problem, there is provided fitting structure of expandable material according to the present invention which is arranged in a hollow portion of a hollow structure, is foamed and contains a core member for reinforcement to form foam for blocking up the hollow portion, characterized in that the expanded material is attached to an outer side of a core member having stiffness and resistance to heat corresponding to a direction of a length of the hollow structure, and the core member is inserted into the hollow portion and supported so as to be positioned at a predetermined position within the hollow portion, and a fitting worked body for fitting, to the hollow portion, expandable material according to the present invention which is arranged in a hollow portion of a hollow structure, is foamed and contains a core member for reinforcement to form foam for blocking up the hollow portion, characterized in that the expanded material is attached to the outer side of a core member having stiffness and resistance to heat corresponding to the direction of the length of the hollow structure, and when the core member is inserted into

the hollow portion, the expandable material is provided such that the core member is positioned at a predetermined position within the hollow portion.

[0005]

[Operation]

According to the fitting worked body of expandable material and the fitting structure of expandable material having the above-described structure, when the expandable material is foamed by means of heating, strength is imparted to the hollow structure because the foam with which the hollow portion of the hollow structure is filled has a core member having stiffness corresponding to the direction of the length of the hollow structure inside.

[0006]

[Embodiments]

First Embodiment

With reference to Figs. 1 to 3, the description will be made of the first embodiment of the present invention.

Fig. 1 is a view showing the fitting structure of expandable material according to the present embodiment 1 in which a fitting worked body of expandable material according to the present embodiment 1 has been installed within the hollow portion 16 within the vehicle pillar, showing a state in which the expandable material has not yet been foamed before heated.

The fitting worked body of expandable material according to the present embodiment 1 comprises an expandable material 2 applied in strata to the outer side of a metallic, pipe-shaped

core material 1 as shown in Fig. 2. This core member 1 and the expandable material 2 are made integral with each other when the expandable material 2 is formed. The expendable material 2 is formed in a circular layer portion 2A having a fixed wall thickness over the entire outer circumference of the core member 1, and into a shape in which at a position that comes into perpendicular contact with the hollow portion 16 of the vehicle pillar, a rectangular parallelopiped-shaped supporting portion 2B is projectingly provided at four places. The length of the cylindrical column-shaped core member 1 can be caused to coincide with the length of a pillar to which the fitting worked body of expandable material according to the present embodiment 1 is fitted, or a plurality of core members 1 having a shorter length than the length of the pillar can be continuously attached in the direction of the length of the pillar for use. If the pillar is not straight line-shaped, the latter use method can be adopted.

[0007]

In the fitting structure of expandable material according to the present embodiment 1, in which the fitting worked body of expandable material according to the present embodiment 1 has been fitted within the hollow portion 16 of the vehicle pillar, it is heated from the outside to foam the expandable material 10. A state in which foam produced fills the hollow portion 16 of the pillar to harden is as shown in Fig. 3. Fig. 3 shows a state in which the hollow portion 16 of the vehicle pillar has been filled with hardened foam between

the core member 1 and the walls within the hollow portion 16.

The interior of the hollow portion 16 of the pillar can be all filled with the foam, or it can be partially filled, and in both cases, the foam is to block up the hollow portion 16 of the pillar.

[0008]

Second Embodiment

Next, with reference to Figs. 4 and 5, the description will be made of the second embodiment according to the present invention.

Fig. 4 is a view showing the fitting structure of expandable material according to the present embodiment 2 in which the fitting worked body of expandable material of the present embodiment 2 has been fitted to the hollow portion 16 within the vehicle pillar, showing a state in which the expandable material before heating has not yet been foamed.

The fitting worked body of expandable material according to the present embodiment 2 is such that, as shown in Fig. 5, on the outer surface of a metallic core member 3 extended in the direction of the length of which the cross section is H-shaped, the expandable material 4 is fitted in strata. This core member 3 and the expandable material 4 have been made integral with each other when the expandable material 4 is formed. The expandable material 4 is formed at a fixed wall thickness over the entire outer surface of the metallic core member 3 of which the cross section is H-shaped, and its entire cross section is substantially H character-shaped with the metallic core

member 3 being centered. In other words, the expandable material 4 is composed of two rectangular parallelopipeds, which have plate-shaped plane portions 4A and 4A at substantially parallel positions, and have a pillar portion 4B of the parallelopiped substantially perpendicularly to the plane portions 4A and 4A between these plane portions 4A and 4A and continuously. The plane portion 4A is continuously provided with a supporting portion S protruding outwardly from the core member 3, and when this fitting worked body has been fitted to the hollow portion 16, the core member 3 is adapted to be disposed at a predetermined central position. In this respect, the supporting portion S may be provided along the direction of the length, or may be partially provided. The length of the core member 3 in the direction of the length may be caused to coincide with the length of a pillar to which the fitting worked body of expandable material according to the present embodiment 2 is fitted, or a plurality of core members 3 having a shorter length than the length of the pillar may be continuously attached in the direction of the length of the pillar for use. If the pillar is not straight line-shaped, the latter use method can be used.

For the expandable material 2 and 4 according to the present embodiment 1 and the present embodiment 2, a compounding material specified in Japanese Published Unexamined Application No. 2-276836 has been used. This material is characterized in that it can be foamed and hardened at the same time at a temperatures of 110 °C to 190 °C, and to produce closed

cell foam. In this respect, for the expandable material, foam which foams by means of external heating can be widely adopted. [0009]

When fitting a fitting worked body of expandable material according to the present embodiment 1 or the present embodiment 2 to the hollow portion 16 of the vehicle pillar, after the supporting portion 2B or the supporting portion S is placed at a predetermined position on the internal pillar portion 12, the internal pillar portion 12 is fixed to the external pillar portion 14 by spot welding 17 to assemble the pillar. Thereby, the fitting structure of expandable material according to the present embodiment 1 or the present embodiment 2 can be obtained.

In the case of this fitting, in the fitting worked body of expandable material according to the present embodiment 1, if three supporting portions 2B are placed in the direction perpendicular to a peripheral inner surface of the internal pillar portion 12, or in the fitting worked body of expandable material according to the present embodiment 2, if two supporting portions S at both ends of the same plane portion 4A are placed on the bottom surface of the internal pillar portion 12, the core member 1 or the core member 3 will be positioned at the central position of the hollow portion 16.

In this respect, as regards positioning of the core member 1 or the core member 3, a magnet piece may be attached onto the expandable material 2 or the expandable material 4 in advance to magnetically attach to the internal pillar portion 12, or as in the past, a bolt may be used to fit the circular layer

portion 2A or the plane portion 4A onto the internal pillar portion 12. In this case, there is no need for provision of the supporting portion 2B or the supporting portion S, and the core member 1 and the core member 3 can be provided at a substantially central position of the hollow portion 16 of the pillar in an extended state in the direction of the length. Thereafter, similarly the internal pillar portion 12 is fixed to the external pillar portion 14 by spot welding 17 to thereby assemble the pillar.

[0010]

The expandable materials 2 and 4 according to the present embodiment 1 and the present embodiment 2 are shaped such that when the pillar has been assembled, the supporting portion 2B and the supporting portion S of the expandable materials 2 and 4 come into direct contact with the peripheral metallic wall in the hollow portion 16. Accordingly, there is an advantage that heat by heating from the outside is prone to be conducted to the expandable materials 2 and 4.

[0011]

The expandable materials 2 and 4 according to the present embodiments 1 and 2 foam by means of heating to fill the hollow portion 16 within the pillar, whereby effects of acoustical insulation, vibration damping and the like are imparted to the pillar. Since this foam is caused by heating (about 160 °C) during painting by heating of the vehicle, there is no need for provision of any heating process, and it is convenient.

Since the fitting worked body of expandable material

and fitting structure of expandable material according to the present embodiments 1 and 2 after foaming have the core member 1 and the core member 3 having stiffness extended in the direction of the length of the pillar within the expandable materials 2 and 4 respectively, strength is imparted to the pillar. Further in this state, the core member 1 and the core member 3 exist at a substantially central position of the hollow portion within the pillar, and therefore, strength is more effectively imparted to the pillar due to the core member 1 and the core member 3.

In this respect, in the present embodiment, the description has been made of a case where the fitting worked body of expandable material according to the present invention is used for the vehicle pillar, but it is possible to use the fitting worked body of expandable material according to the present invention for the hollow portion of another hollow structure in addition to the vehicle pillar, to obtain the fitting structure of expandable material according to the present invention, and to cause expandable material to foam by heating for obtaining effects of the acoustical insulation, vibration damping, waterproofing and the like.

[0012]

[Effect of the Invention]

According to the fitting worked body of expandable material and the fitting structure of expandable material of the present invention, since an expandable material has been fitted on the outer side of the core member having stiffness

and resistance to heat extended in the direction of the length of the hollow structure, when the expandable material is caused to foam by heating, it is possible to obtain effects of the acoustical insulation, vibration damping, waterproofing and the like due to foam with which the hollow portion within the hollow structure is filled, and strength is imparted to the hollow structure due to the core member having stiffness extended in the direction of the length of the hollow structure.